What is claimed is:

1. A three-dimensional measurement method for measuring a distance to a plurality of positions on an object by projecting light and receiving light reflected from the object, said three-dimensional measurement method comprising the steps of:

projecting a pulse light on an object;

receiving light reflected from the object by an area sensor comprising a plurality of photoelectric conversion elements;

controlling the active/inactive timing of the area sensor such that the photoelectric conversion elements are exposed to light with a timing synchronously with the pulse light projection; and

measuring the distance to each photoelectric conversion element based on the output of the area sensor.

2. A three-dimensional measurement method according to claim 1, wherein the distance to each photoelectric conversion element is measured based on the output of the area sensor when the active/inactive timing of the area sensor is controlled such that the amount of exposure of the area sensor is dependent on the light propagation time, and the output of the area sensor when the

active/inactive timing of the area sensor is controlled such that the amount of exposure of the area sensor is independent of the light propagation time.

3. A three-dimensional measurement method according to claim 1, wherein the period of the projected pulse light matches the period of the exposure of the photoelectric conversion element.

4. A three-dimensional measurement method according to claim 1, wherein a plurality of exposures are obtained by different timings in a single projection.

5. A three-dimensional measurement method according to claim 1, wherein a plurality of the exposures are obtained within a period of pulse light projection.

6. A three-dimensional measurement device for measuring the distance to a plurality of positions on an object by projecting light and receiving the light reflected from the object, said three-dimensional measurement device comprising:

a projector for projecting pulse light on an object;

an area sensor comprising a plurality of photoelectric conversion elements for receiving light reflected from the object;

a controller for controlling the ON/OFF states of the photoelectric elements with a timing synchronized with the pulse light projection; and

a processor for eliminating the fluctuating component of the received light intensity due to distance or reflectivity of the object from the amount of exposure obtained based on the ON/OFF control.

7. A three-dimensional measurement device according to claim 6, further comprising an internal optical path for directing the pulse light from the projector to at least one photoelectric conversion element in the solid state area sensor, wherein the measurement value is corrected in accordance with the amount of exposure of the area sensor by the pulse light propagated through the internal optical path.

8. A three-dimensional measurement device according to claim 6, further comprising an optical unit capable of switching the luminance distribution within the range projected by the projector so as to sequentially project light of a first luminance distribution and light of a

second luminance distribution on an object, wherein the three-dimensional device is provided an operation mode for measuring the distance to each photoelectric element based on the output of the solid state area sensor in a first projection and the output of the solid state area sensor in a second projection.

9. A three-dimensional measurement device according to claim 6, wherein the ON/OFF control of the photoelectric elements is accomplished differently for each line of the area sensor.

10. A three-dimensional measurement method for measuring a distance to a plurality of positions on an object by projecting light and receiving light reflected from the object, said three-dimensional measurement method comprising the steps of:

sequentially projecting light of a first luminance distribution and light of a second luminance distribution on an object;

receiving light reflected by the object in each projection cycle by a solid state area sensor comprising a plurality of photoelectric elements; and

measuring the distance to each photoelectric element based on the output of the solid state area sensor in a

first projection and the output of the solid state area sensor in a second projection.

11. A three-dimensional measuring method comprising the steps of:

emitting a reference light in an emission time period;

receiving the reference light reflected from an object on a sensor; and

controlling the sensor so as to be active through a sensing time period synchronized with the emission time period, while the sensor is active, the light received by the sensor being converted to electric signal relative to quantity of the received light.

12. A three-dimensional measuring method according to claim 11, wherein the emission time period is repeated in first time frame of plurality of time frames, and the sensing time period is repeated to synchronize with the emission time period in the time frame, whereby a distance data representing a distance to a portion of the object is obtained by the electric signal.

13. A three-dimensional measuring method according to claim 12, wherein the emission time period is not

reside throughout second time frame of a plurality of time frames, that is, the emission is stopped in the Second time frame, and the sensing time period is repeated in the second time frame, wherein the distance data is obtained as unobnoxious environment light by referring to the electric signal in the Second time frame.

14. A three-dimensional measuring method according to claim 12, wherein the emission time period is repeated in Third time frame of the plurality of time frames, and the sensing time period is lengthened throughout the Third time frame, wherein the distance data is obtained as unobnoxious differences between reflection ratios of respective portions of the object by referring to the electric signal in the Third time frame.

15. A three-dimensional measuring apparatus according to claim 11, wherein the emission time period is repeated per a predetermined period consisting of the emission time period and an emission-off time, the sensing time period is lengthened throughout the period by being split up into plurality of time frames.

16. A three-dimensional measuring apparatus used for measuring a three-dimensional shape of an object, the apparatus comprising:

an emitting portion for emitting a reference light in an emission time period;

a receiving portion for receiving the reference light reflected from the object, the receiving portion has a sensor that senses a received light in an active state thereof;

a control portion for controlling the sensor so as to be active state in a sensing time period synchronized with the emission timing.

17. A three-dimensional measuring apparatus according to claim 16, wherein the sensor is a charge-coupled device that converts the received light into an electric signal in an active state thereof.

18. A three-dimensional measuring apparatus according to claim 16, wherein the sensor is a sensor using a metal-oxide semiconductor that converts the received light into a electric signal in an active state thereof.

19. A three-dimensional measuring apparatus according to claim 16, wherein the sensor has a plurality of pixels, a light path through which a portion of the emitted light passes onto at least one pixel of the plurality of pixels is laid on in the apparatus.